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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,583	08/05/2003	Taku Kanaoka	XA-9913	8647
181	7590	12/28/2005	EXAMINER	
MILES & STOCKBRIDGE PC 1751 PINNACLE DRIVE SUITE 500 MCLEAN, VA 22102-3833			MANDALA, VICTOR A	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/633,583

Applicant(s)

KANAOKA ET AL.

Examiner

Victor A. Mandala Jr.

Art Unit

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RM

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10/13/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-71 is/are pending in the application.
- 4a) Of the above claim(s) 3, 6, 7, 9, 10 and 16-44 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 52-71 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 11, 13, 45, 47 and 48 is/are rejected.
- 7) ☒ Claim(s) 8, 12, 14, 46 and 49-51 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. The Applicant continues to argue that Restriction of Species filed on 3/31/05 is improper and the examiner has not answered the Applicant's arguments against the restriction filed on 4/29/05. The examiner has previously considered the Applicant's arguments filed on 4/29/05, but was unable to find any argument against the Restriction other than the Applicant designing a new restriction other than what was given on 3/31/05. There was no mention in the arguments why the Restriction filed on 3/31/05 was in error, but how the Applicant preferred to have it restricted. The election is made final.

2. Newly submitted claims 42-44 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 42-44 depend upon a previously withdrawn independent claim 41.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 42-44 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4, 5, 13, 45, and 48 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,291,331 Wang et al.

3. Referring to claim 1, a semiconductor device, comprising: semiconductor elements, (Figure 3 #30, 32, & 33), formed on a substrate, (Figure 3 #10); plural electrode pads, (Figure 3 #100), arranged over said semiconductor elements, (Figure 3 #30, 32, & 33); and a wiring layer, (Figure 3 #80), arranged over said semiconductor elements, (Figure 3 #30, 32, & 33), said wiring layer, (Figure 3 #80), being arranged below said plural electrode, wherein in said wiring layer, (Figure 3 #80), area occupation rates of wirings, (Figure 3 #80, 78, 76, & 74), arranged in areas of respective planar regions of the plural electrode pads, (Figure 3 #100), become are substantially uniform.

4. Referring to claim 2, a semiconductor device according to claim 1, wherein the area occupation rates of wirings, (Figure 3 #80, 78, 76, & 74), arranged within the areas of the planar regions of said plural electrode pads, (Figure 3 #100), are respectively, at least 50% of the respective areas.

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5. Referring to claim 4, a semiconductor device according to claim 1, wherein variations in the area occupation rates of wirings, (Figure 3 #80, 78, 76, & 74), arranged within the areas of the planar regions of said plural electrode pads, (Figure 3 #100), are, respectively, within 10%.

6. Referring to claim 5, a semiconductor device according to claim 1, wherein variations in the area occupation rates of wirings, (Figure 3 #80, 78, 76, & 74), arranged within the areas of the planar regions of said plural electrode pads, (Figure 3 #100), are, respectively, within 5%.

7. Referring to claim 13, a semiconductor device according to claim 1, wherein a part of a wiring layer of the wirings, (Figure 3 #80, 78, 76, & 74), arranged within the planar regions of said plural electrode pads, (Figure 3 #100), is devoid of wiring.

8. Referring to claim 45, a semiconductor device comprising: a semiconductor element, (Figure 3 #30, 32, & 33), formed on a substrate, (Figure 3 #10); a wiring layer, (Figure 3 #80, 78, 76, & 74), formed over said semiconductor element, (Figure 3 #30, 32, & 33), and having wiring, (Figure 3 #80, 78, 76, & 74), connected to said semiconductor element, (Figure 3 #30, 32, & 33); and a pad, (Figure 3 #100), formed over said wiring layer, (Figure 3 #80, 78, 76, & 74), wherein in said wiring layer, (Figure 3 #80, 78, 76, & 74), an area occupation rate of wirings, (Figure 3 #80, 78, 76, & 74), arranged in an area of a planar region of said pad, (Figure 3 #100), and formed under said pad, (Figure 3 #100), is at least 50% of said area.

9. Referring to claim 48, a semiconductor device according to claim 45, wherein a portion of said wiring layer, (Figure 3 #80, 78, 76, & 74), is devoid of wiring.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No. 6,291,331 Wang et al. in view of U.S Patent No. 6,261,883 Koubuchi et al.

10. Referring to claim 11, a semiconductor device according to claim 1, wherein a bump electrode, (Koubuchi et al. Figure 14 #28), is bonded to said plural electrode pads, (Wang et al. Figure 3 #100 and Koubuchi et al. Figure 14 #13), respectively, (See \*\* below).

\*\* Wang et al. teaches all of the claimed matter in claims 11 and 47, but is silent on a bump electrode formed on the bonding pad, but Koubuchi et al. does. It would have been obvious to one having skill in the art at the time the invention was made to add a bump to an electrode pad for connection to external devices, and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

12. Referring to claim 47, a semiconductor device according to claim 45, wherein a bump electrode, (Koubuchi et al. Figure 14 #28), is bonded to said pad, (Wang et al. Figure 3 #100 and Koubuchi et al. Figure 14 #13), respectively, (See \*\* above).

***Allowable Subject Matter***

13. Claims 8, 12, 14, 46, and 49-51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 52-71 are allowed.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A. Mandala Jr. whose telephone number is (571) 272-1918. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAMJ  
12/14/05

  
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